Personalized Learning in the Flipped Classroom: A Journey Towards Mastery

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Bloomington Public Schools
Session Topics

- personalized learning with standards-based instruction
- results
- utilizing technology & digitizing content
- Mastery-based learning: What it looks like in the classroom
- digital assessment of student learning
- getting started
Ultimate Goal:

Individualized learning for every student, every day.
Growth in Math Scale Scores for Flipped Instruction and Matched Sample Students

<table>
<thead>
<tr>
<th>NWEA Scale Scores</th>
<th>Spring 2012 Math Scale Score</th>
<th>Spring 2013 Math Scale Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matched Sample</td>
<td>223.8</td>
<td>231.5</td>
</tr>
<tr>
<td>Flipped Instruction</td>
<td>223.8</td>
<td>235.5</td>
</tr>
<tr>
<td>National Norm</td>
<td>224</td>
<td>229</td>
</tr>
</tbody>
</table>
Growth in Math Scale Scores for Flipped Instruction and Matched Sample Students – Free/reduced Lunch

<table>
<thead>
<tr>
<th></th>
<th>Spring 2012 Math Scale Score</th>
<th>Spring 2013 Math Scale Score</th>
</tr>
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<tbody>
<tr>
<td>Matched Sample</td>
<td>214.4</td>
<td>222.7</td>
</tr>
<tr>
<td>Flipped Instruction</td>
<td>215.0</td>
<td>228.5</td>
</tr>
<tr>
<td>National Norm</td>
<td>215</td>
<td>221</td>
</tr>
</tbody>
</table>

Gain = 13.4
Gain = 8.3
Mastery Based Learning - Data Study

- Compared 85 students in a Mastery Based classroom vs. 85 matched students.

- Completed by Dr. Dave Heistad, Director of Research, Evaluation, and Assessment.
Our Journey

- **2011**: Flipped Cohort, Digital Content, Moodle
- **2012**: Digital Content, Digital Formative Assessments, Moodle - Student Facing
- **2013**: 1:1 Chromebooks, Standards-based Units, Flipped Classroom Model
- **2014**: Mastery-based learning model, Individualized learning plans for each student
- **2015**: Student friendly standard cards, Students self-pace through the standards
First Steps (2011)

- joined our district’s flipped cohort
- filled holes in our curriculum by creating standards-based math videos
- created a Moodle to house our digital videos, resources, and assessments
Our Journey

2011
- Flipped Cohort
- Digital Content
- Moodle

2012
- Digital Content
- Digital Formative Assessments
- Moodle - Student Facing

2013
- 1:1 Chromebooks
- Standards-based Units
- Flipped Classroom Model

2014
- Student friendly standard cards
- Students self-pace through the standards

2015
- Mastery-based learning model
- Individualized learning plans for each student
Lab-Rotation Model (2012)

- 3 hours of **computer lab** time per week
- created formative assessments per video utilizing **Google Forms**
- mix between face-to-face instruction and video lessons for key skills per unit
Our Journey

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2015
- Mastery-based learning model
- Individualized learning plans for each student

I can...
Identify and draw different 2D & 3D shapes and terms
Determine the number of faces, edges, and vertices that a three dimensional figure has.
1:1 Chromebooks - Flipped Classroom (2013)

● 1:1 Chromebooks in 5th grade
● reconstructed our units based on standards
● traditional “Flipped” model
  ▪ **Homework:** video lessons per standard
  ▪ **Class time:** small group instruction, guided practice, and projects to apply learning
Our Journey

2011
- Flipped Cohort
- Digital Content
- Moodle

2012
- Digital Formative Assessments
- Moodle - Student Facing
- YouTube

2013
- 1:1 Chromebooks
- Standards-based Units
- Flipped Classroom Model

2014
- Student friendly standard cards
- Students self-pace through the standards

2015
- Mastery-based learning model
- Individualized learning plans for each student
Mastery-based Learning Model (2014)

- Student-friendly **standards cards** for each unit
- Students complete lessons and move through the curriculum at their own **pace**
  - videos and resources are available for students above and below grade level
- **Checks for understanding** are embedded
- Frequent **feedback**
Our Journey

2011
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2015
- Mastery-based learning model
- Individualized learning plans for each student

-I can...
- Identify and draw different 2D & 3D shapes and terms
- Determine the number of faces, edges, and vertices that a three-dimensional figure has.

- **differentiated** lessons for students **above** and **below** grade level
- all students introduced to grade level material but **supported** and **enriched** below and above grade level when needed
- students have control over: **time, place, path,** and **pace**
Standards Based Instruction

**Standards in kid-friendly language**

**Instructional online lessons (teacher created)**

**Practice & activities to complete on the way to mastery**

### Geometry Skills Checklist

<table>
<thead>
<tr>
<th>I can...</th>
<th>Practice to Complete</th>
<th>Mastery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a booklet dedicated to geometry vocabulary (draw and explain each shape/term)</td>
<td>Make sure to include all terms listed in the table of contents.</td>
<td></td>
</tr>
<tr>
<td>Determine the number of faces, edges, and vertices that a three-dimensional figure has.</td>
<td>Lesson: Faces, edges &amp; vertices</td>
<td></td>
</tr>
<tr>
<td>Name and classify 2-D &amp; 3-D figures</td>
<td>Lesson: Name and classify 2-D figures</td>
<td></td>
</tr>
<tr>
<td>Recognize a net for a 3-D figure</td>
<td>K.A. Nets of 3-D figures</td>
<td></td>
</tr>
<tr>
<td>Draw a net for a 3-D figure</td>
<td>Nets of 3-D Objects Activity</td>
<td></td>
</tr>
<tr>
<td>Use a formula to determine the area of parallelograms &amp; rectangles</td>
<td>Lesson: Area of Rectangles and Parallelograms</td>
<td></td>
</tr>
<tr>
<td>Use a formula to determine the area of a triangle</td>
<td>Lesson: Area of a Triangle</td>
<td></td>
</tr>
<tr>
<td>Use a formula to determine the area of any figure that can be broken down into triangles.</td>
<td>Lesson: Area of Complex Figures</td>
<td></td>
</tr>
<tr>
<td>Use cubic units and formulas to label and find volume</td>
<td>Lesson: Volume of Rectangular Prisms</td>
<td></td>
</tr>
</tbody>
</table>

**Moodle Lessons to Watch & Do:**

<table>
<thead>
<tr>
<th>Score</th>
<th>Foci, edges &amp; vertices</th>
<th>Name and classify 2-D &amp; 3-D figures</th>
<th>Area of Rectangles and Parallelograms</th>
<th>Area of a Triangle</th>
<th>Area of complex figures</th>
<th>Volume of Rectangular Prisms</th>
<th>Surface Area of Rectangular Prisms</th>
</tr>
</thead>
</table>

**Activities to Complete:**

- Create a booklet dedicated to geometry vocabulary (draw and explain each shape/term)
- Construct a net and label the faces, edges and vertices
- Nets of 3-D Objects
- Surface Area Activity (in packet)
- Design a cereal box

**3 checks to prove mastery**
## What it Looks Like in the Classroom

### Unit: Algebra  Week 4 of 6

<table>
<thead>
<tr>
<th>Sample Class Day:</th>
<th>Student A</th>
<th>Student B</th>
<th>Student C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Status:</strong></td>
<td>¾ done with 5th grade Standards Card</td>
<td>½ way done with 6th grade Standards Card</td>
<td>Has completed some of the requirements to master the essential standards</td>
</tr>
<tr>
<td><strong>10 mins:</strong></td>
<td>small group mini-lesson with teacher</td>
<td>&lt;5 mins: check-in with teacher to get help on skill</td>
<td>10 mins: One-on-one teacher intervention time</td>
</tr>
<tr>
<td><strong>5 mins:</strong></td>
<td>online math fact practice</td>
<td>30 mins: Watches 6th grade skill videos and completing assessments</td>
<td>30 mins: pulled out of class for Math Corp support</td>
</tr>
<tr>
<td><strong>25 mins:</strong></td>
<td>Khan Academy Practice (masters 2 skills)</td>
<td>5 mins: gets progress marked off standards card</td>
<td>15 mins: Khan Academy skill practice at 3rd grade level</td>
</tr>
<tr>
<td><strong>10 mins:</strong></td>
<td>completes a paper/pencil packet page and gets it checked</td>
<td>20 mins: paper/pencil packet work time</td>
<td>15 mins: Watches a 5th grade skill video and starts assessment</td>
</tr>
<tr>
<td><strong>10 mins:</strong></td>
<td>partner word problem</td>
<td>5 mins: Individual word problem practice</td>
<td>5 mins: Partner math fact practice game</td>
</tr>
<tr>
<td><strong>5 mins:</strong></td>
<td>gets progress marked off standards card</td>
<td>25 mins: project work time</td>
<td>15 mins: Project work time</td>
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<td><strong>25 mins:</strong></td>
<td>project work time</td>
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Assessment

Formative
- **Google Form Data**
  - utilized to plan small group lessons and interventions
- Khan Academy: web-based skill practice
  - provides **instant feedback** to students and accurate data to teacher
- Entrance & Exit Slips

Summative
- Mastery Checks
  - **One-on-one check** with teacher per individual standard
- Unit Test
  - Large **correlation** between % mastered on standards-card to % achieved on summative assessment
Template for Personalized Learning
goo.gl/rQGW3s
Where to begin?

- What holes are in the current curriculum when compared to the most current standards?
- Are there skills, activities, projects or lessons that have been eliminated due to time constraints?

Digitized instruction can fill these holes!
Start Small

- Choose 5-6 skills/standards to focus on (perhaps the holes that you’ve found)
  - Digitize content for these skills at a variety of levels
    - what prerequisite skills would be needed?
    - what’s the next standard/skill after a student achieves mastery?
  - Create checklists/individualized learning plans based on the 5-6 skills
- Build from there!
Beginning Tips & Steps

- Allow time for collaboration. Lots of it!
- Ask your district about release days and summer writing time for teachers
- Develop routines early
  - What will class time look like?
  - How will we break up the time?
- Encourage feedback from students & families
- Dedicate time to small group and individualized learning
  - Google forms serve as a great formative assessment
  - Teachers are able to use student data from the forms to create small groups based upon student need
What we strive for...

- Individualized learning for every student, every day.
  - students are working on applying what they’ve learned through projects, games, and exploration
  - students learn to become accountable for their own learning through choice, structure and encouragement
  - learning goes well beyond the grade-level standards
    - Cross-curricular
    - Enrichment (working above grade level)
    - “Real-world” skills- creation, construction, invention
Questions?

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